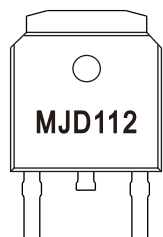
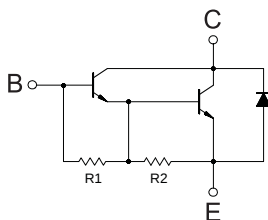


TO-251-3L Plastic-Encapsulate Transistors**MJD112**

DARLINGTON TRANSISTOR (NPN)

FEATURES

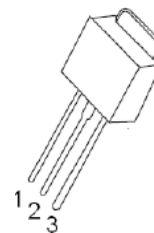
- Complementary Darlington Power Transistors
- Dpak for Surface Mount Applications

MARKING**Equivalent Circuit****TO-251-3L**

1. BASE

2. COLLECTOR

3. EMITTER

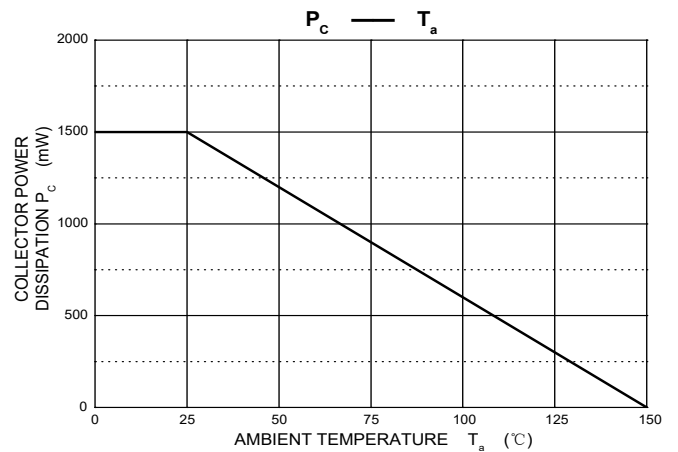
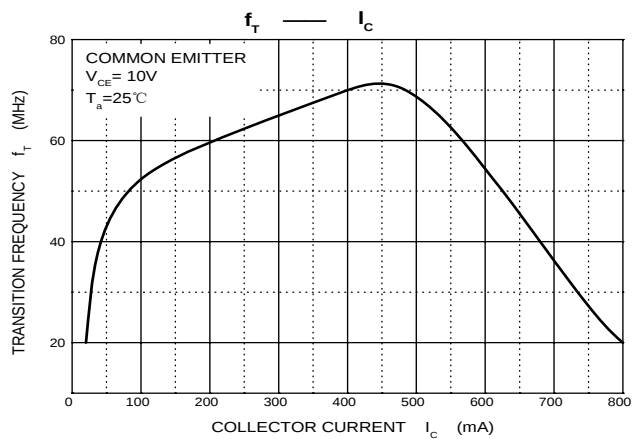
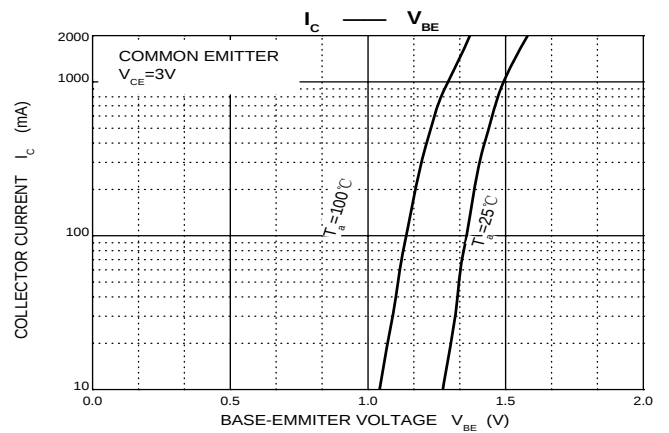
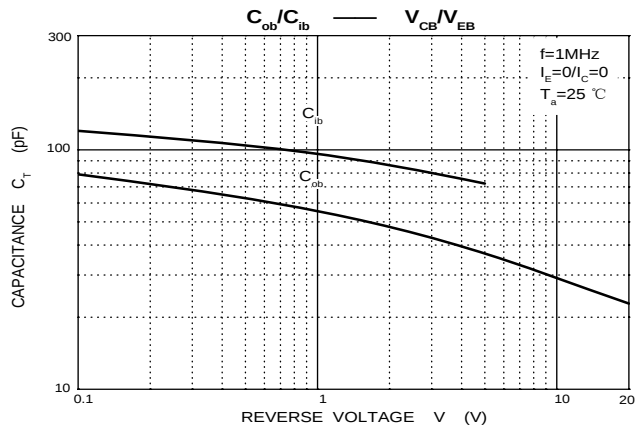
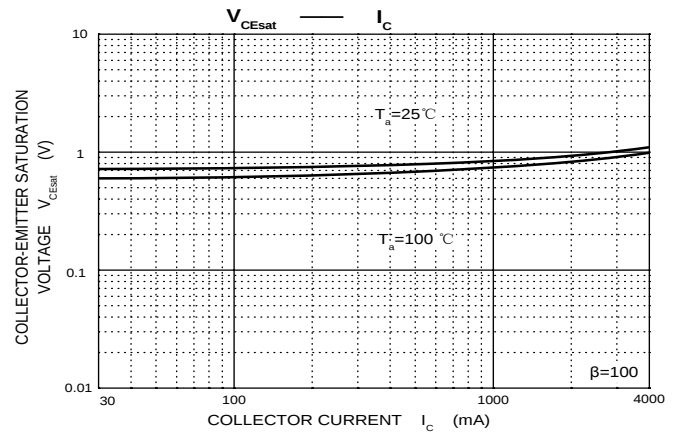
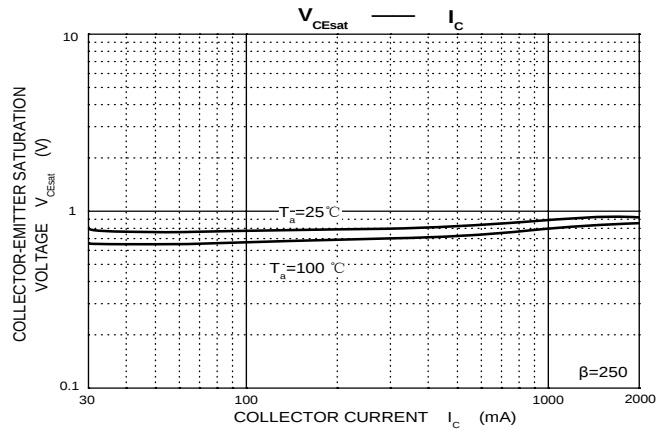
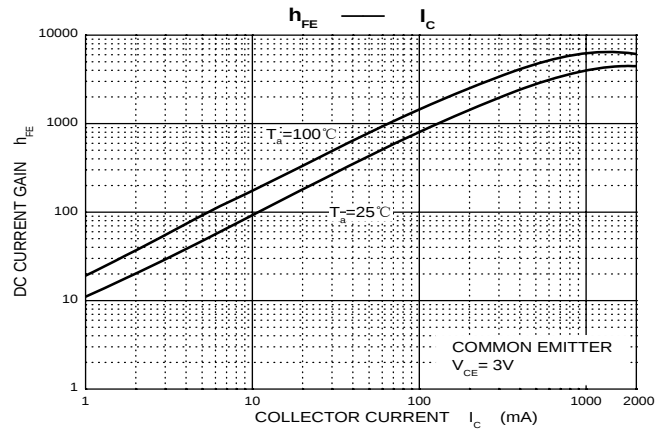
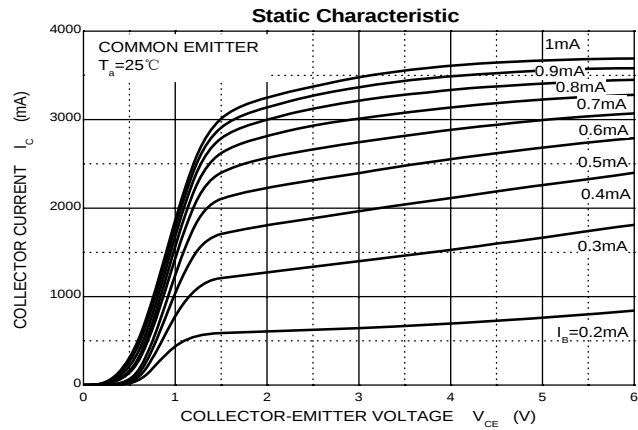
**MAXIMUM RATINGS** ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	2	A
P_C	Collector Power Dissipation	1.5	W
$R_{\theta JC}$	Thermal resistance, junction to case	6.25	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal resistance, junction to Ambient	83.3	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55-150	$^{\circ}\text{C}$

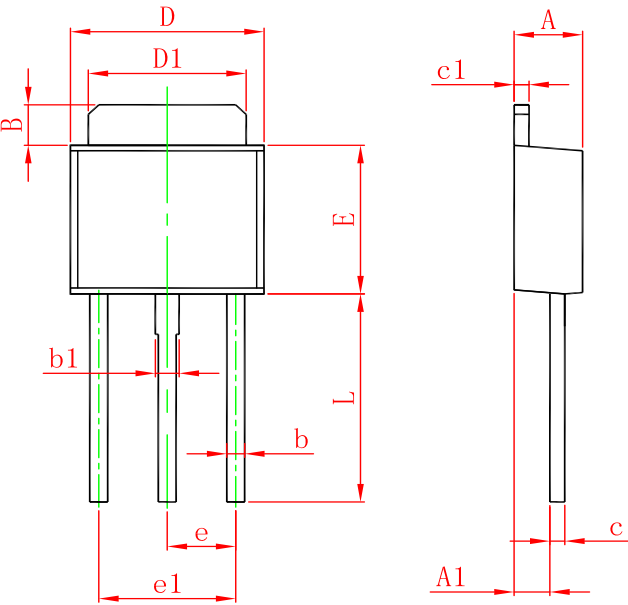
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1\text{mA}, I_E=0$	100			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=30\text{mA}, I_B=0$	100			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=5\text{mA}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=100\text{V}, I_E=0$			20	μA
Collector-emitter cut-off current	I_{CEO}	$V_{CE}=50\text{V}, I_E=0$			20	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			2	mA
DC current gain	$h_{FE(1)}$	$V_{CE}=3\text{V}, I_C=500\text{mA}$	500			
	$h_{FE(2)}$	$V_{CE}=3\text{V}, I_C=2\text{A}$	1000		12000	
	$h_{FE(3)}$	$V_{CE}=3\text{V}, I_C=4\text{A}$	200			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=2\text{A}, I_B=8\text{mA}$			2	V
	$V_{CE(sat)2}$	$I_C=4\text{A}, I_B=40\text{mA}$			3	V
Base-emitter voltage	V_{BE}	$V_{CE}=3\text{V}, I_C=2\text{A}$			2.8	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=0.75\text{A}, f=1\text{MHz}$	25			MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$			100	pF

Typical Characteristics



Package Outline Dimensions (TO-251-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	1.050	1.350	0.042	0.054
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	7.500	7.900	0.295	0.311